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## A CONVENIENT CARD-CATALOGUE OF FOOD ADULTERANTS.

By E. H. S. BAILEY.

THE federal and state laws which have been enacted during the past eight or nine years against the adulteration and misbranding of foods make it necessary that standards for pure foods should be in the hands of chemists and others who have to do with the enforcement of these laws. Since these laws have been in operation chemists in food laboratories have been busily employed studying the individual foods and detecting the common adulterants found in them, while at the same time it is unfortunately true that some food manufacturers have used much ingenuity to evade as nearly as possible the rulings of the departments.

After several years of experience, however, with a given food product, the common adulterants to which it is subject become quite well known, so that it is only occasionally that a new fraud upon the consuming public is discovered.

Food may be injured or decreased in value in various ways. It does not often contain substances that are actually and actively poisonous, but it may contain ingredients which decrease its food values. It may have been treated by some process which has decreased its value, as when rice is "polished" and coated to make it have a better appearance, notwithstanding considerable valuable nutritive material is by this process removed. The food may have been subjected to some adulteration which makes it "appear better than it really is," as when distilled vinegar, which is inexpensive, is colored with caramel and sold as cider vinegar, a variety which costs more money; or when Hamburger steak, that has been allowed to stand so long in the shop that it begins to show its age, is treated with sodium sulphite to give it again the color and odor of fresh meat.

Foods are also injured and rendered unfit for consumption by improper methods of preparation or handling, as when oranges are picked while still immature, and sweated to bring out the color and give them the appearance of ripeness; or when eggs which have been kept for many months in cold

storage are sold for "strictly fresh country eggs." Again, foods are often misbranded as to the place where grown or produced. A cheese may be labeled as imported from France or Switzerland, when in reality it was made in Wisconsin or New York; a sweet corn may be put on the market purporting to be raised in Maine, when it is really the product of a Missouri cannery.

The net weight of all foods sold in packages must be stated on the box or carton although manufacturers and dealers are allowed until next summer to dispose of the unmarked goods which they may have on hand. Most food manufacturers have already complied with this federal law, and very few packages not bearing the net-weight label are found on the market.

With all these chances applicable for adulteration, misbranding and causing a lowering of the grade of foods, it might seem that it would be difficult to classify or catalogue them; but the fact is that the whole story can be told in about 100 ordinary library cards. The general classes of foods, such as beverages, cereals, eggs, fruit, fish, meat, milk products, nuts, oils, starches, spices, sugars and vegetable products, are indicated on the guide cards, and under each head the individual foods are noted, with the common adulterants or means of falsification serially numbered. Thus under "Oysters" occur the following:

1. Shipping with ice in tubs (floating).
2. Growing where there is danger of typhoid infection, etc.
3. Selling under a wrong name as to locality where grown.
4. Coloring green with salts of copper (English).
5. Use of preservatives, such as formaldehyde, borax or boric acid.

This system has the advantage that it is very compact and can be expanded by the addition of other numbers showing adulterations or falsifications on each card, as they are from time to time noticed; also other foods can at any time be introduced into the list. It is believed that this method of classification will prove useful to any teacher or in any laboratory where the purity of foods is made an object of study.